

REMARKS

Claims 55-57 have been cancelled without prejudice. Claim 52 and new claims 58-59 are pending in this application. In the Office Action of March 14, 2003 Claims 52-57 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In addition, claims 52-57 have been rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,399,497 -Kumar.

Reconsideration and withdrawal of the rejections and objections are requested for the reasons stated below.

35 U.S.C. § 112 Rejections

Claim 52 has been amended to more particularly point out the subject matter the applicant considers to be the invention. In particular, it is now clear that the valve is actuated to connect the first conduit to the second conduit. As clearly stated in the specification, the first air segment then flows into the second conduit first and the last air segment flows into the conduit last. Thus, the order of flow out of the second conduit is first in last out. The valve is then closed. This has the effect of truncating the last air segment and adjusting its volume. (See Specification Pg. 5, Lines 8-16)

The valve is actuated again to connect the second conduit with the third conduit. The segments are then flowed into the third conduit. (See Specification Pg. 5, Lines 17-23.) An interface between the final air segment and a final liquid segment is detected. The detection of this interface is fed back to the valve control whereby the valve is closed so as to truncate the volume of the first air segment. (See Specification Pg. 20, Lines 9-15.)

New claims 58-59 add the steps of having the plurality of fluid and air segments flowing in a forward and reverse direction in the third fluid conduit. The interface is detected when the flow is reversed, i.e. back towards the valve. At this point, the flow is stopped and the valve is closed after a pre-determined time delay. This time delay is normalized around a predetermined nominal center point delay according to a feedback loop. (See Specification Pg. 20, Lines 17-23 to Pg. 22, Lines 1-19)

No new matter has been added to the claims. Support for the amendments can be found in the Specification at the pages noted above. Claim 52 clearly and distinctly claims the subject matter that the applicant considers the invention and does not omit any essential steps. Accordingly, it is respectfully requested that the amendments be entered and the rejection of claim 52 under 35 U.S.C. §112, second paragraph be withdrawn.

35 U.S.C. § 103 Rejections

Claim 52 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Kumar. The apparatus of Kumar features a plurality of fluid conduits that are lined with an isolation liquid. Test packages, which comprise a plurality of liquid and air segments, are aspirated into a first fluid conduit. Each test package occupies a given length of the fluid conduit. As new test packages are moved into the first conduit, the previous test packages are gradually moved from the first conduit into a second conduit.

When one of the previous test packages reach a predetermined point in the second conduit, a valve is actuated and the test package is transferred to a third fluid conduit. During these operations, it is crucial that the test package be precisely positioned within the conduits. Thus, ideally, each test package should be the same length so that the control of the stream can be precisely timed.

Unfortunately, the length of the liquid segments of the test packages vary. This is caused by variations in the surface tensions of the liquids which make up each liquid segment. Thus, each liquid segment interacts differently with the isolation liquid. (See Page 9, Lines 1-10 of the Specification). Thus,

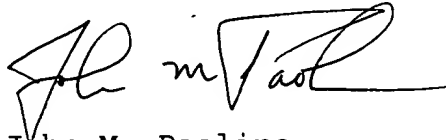
liquid segments having different physical properties will have different lengths. This adversely affects the length of the overall test packages, so that it may be out of position relative to, for example, the luminometer.

In order to solve this problem, the present invention employs a method that adjusts the volume of the air segments, thus adjusting the overall length of the test packages. In addition, a feed back loop is employed in conjunction with the means for adjusting the volume so as to avoid adversely affecting the next successive test package. In this manner it is assured that the liquid segments are accurately positioned within the conduits. This method is not disclosed or suggested by Kumar. Indeed, Kumar exhibits the very shortcomings that the present invention seeks to overcome. Thus, it would not be obvious to one of ordinary skill in the art modify Kumar to obtain the present invention.

CONCLUSION

Every effort has been made to particularly and distinctly define the subject matter of the invention. The claims are definite, and are patentable over the prior art of record. For all the foregoing reasons, the differences between the invention and the prior art of record are such that the subject matter claimed as a whole is patentable over the prior art cited by the Examiner. Reconsideration, and allowance of the pending claims, are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'John M. Paolino', with a stylized flourish at the end.

John M. Paolino
Registration No. 40,340

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Bayer HealthCare LLC
511 Benedict Avenue
Tarrytown, NY 10591-5097
(914) 524-2552